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PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
NG, CHRISTINE Y	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,021	TOURUNEN, ARI	
	Examiner	Art Unit	
	Christine Ng	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/12/02, 7/17/02, 1/26/02
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: LC1, LC2, LC3 (page 10, line 28). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2, 3, 4, 6, 8, 11, 12, 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the compression state" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 2: it is unclear whether or not the compression states (line 6) refer to the different contexts of claim 1.

Claim 3 recites the limitation "the RRC protocol entities" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the packet data convergence protocol layer entity" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the packet data convergence protocol layer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the selected compression algorithm and compression context" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the recipient" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the negotiated compression algorithm and compression context" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the channels" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the payload" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 line 7: “compress” should be changed to “compression”.

Claim 11 recites the limitation "the selected compression algorithm and compression context" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim.

Claim 11: it is unclear whether or not the "at least two different compress states" (line 7) and "different states" (lines 14-15) refer to the different compression algorithms and compression contexts (lines 11-12).

Claim 12 recites the limitation "the packet data convergence protocol layer entity" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "the negotiated compression algorithm and compression context" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim 14: it is unclear whether or not the packet data convergence protocol layer entity performing the steps in lines 9-16 is part of the mobile station or the radio network controller. The radio network controller transfers instruction to the mobile station to allocate logical channels using the packet data convergence protocol layer entity (lines 3-8) but the claim does not state that the mobile station has a packet data convergence protocol layer entity. The claim only states that the radio network controller has a packet data convergence protocol layer entity (lines 1-2).

Claim 14 recites the limitation "the selected compression algorithm and compression context" in lines 12-13. There is insufficient antecedent basis for this limitation in the claim.

Claim 14: it is unclear whether or not the "at least two different compression states" (line 8) and "different states" (lines 15-16) refer to the different compression algorithms and compression contexts (lines 12-13).

Claim 15 recites the limitation "the packet data convergence protocol layer entity" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the negotiated compression algorithm and compression context" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 5, 7 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,711,164 to Le et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Referring to claims 1 and 7, Le et al disclose in Figure 3 a method for transferring IP data comprising payload and header fields (column 1, line 15), the method comprising:

Allocating at least two logical connections (313, 315) for the transfer of header fields compressed on the basis of different contexts (context 1, context 2).

Transferring the header fields compressed on the basis of the different contexts on separate logical connections (313,315). Compressor 314 compresses the headers of flows 311, 312 according to a context 1, context 2 and transmits each of the packets with a compressed header as flows 313,315. Refer to Column 4, lines 41-56.

Referring to claims 5 and 9, Le et al disclose in Figure 3 that at least separate radio bearer parameters (different contexts) are reserved for said logical connections (313,315) to be allocated to the header fields compressed on the basis of different contexts. Flow 311 is compressed according to a context 1 and flow 312 is compressed according to context 2. Refer to Column 2, lines 37-40 and Column 4, lines 52-56.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over 6,711,164 to Le et al in view of U.S. Patent No. 5,909,431 to Kuthyar et al.

Le et al do not disclose synchronizing the channels to be used for said logical channels.

Kuthyar et al disclose in Figure 1 that a bridge 6 receives packets from computers 1-1 to 1-5, serializes the packets, compensates for delay jitter, and insures real-time audio and video synchronization. Refer to Column 3, line 58 to Column 4, line 5. In Figure 3, computers 1-1 to 1-5 have a synchronization entity 104 that provides synchronization intramedia and intermedia services to audio 105 and video 103 coming from upper layer applications 100-1 and 100-2 on different logical channels. Refer to Column 4, line 39 to Column 4, line 20. In Figure 4, bridge 6 has a synchronization entity 206 that provides synchronization intramedia and intermedia services to audio 207 and video 205 coming from upper layer applications 200-1 and 200-2 on different logical channels. Refer to Column 5, line 20 to Column 6, line 13. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include synchronizing the channels to be used for said logical channels. One would be motivated to do so in order to synchronize the audio and video data coming in from different logical channels to produce a coherent frame.

8. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,711,164 to Le et al in view of U.S. Patent No. 6,967,964 to Svanbro et al.

Referring to claim 10, refer to the rejection of claims 1 and 7. Le et al also disclose that the method can be used in cellular systems over wireless interfaces, in

order to utilize header compression to conserve radio resources. Refer to Column 1, lines 38-44. The invention disclosed in Figure 3 "may form part of apparatus such as host, terminal, router, etc.". Refer to Column 3, lines 54-60.

However, Le et al disclose in Figure 3 an IP layer performing the disclosed method but do not disclose a mobile station comprising a data link layer to perform the disclosed method.

Svanbro et al disclose in Figure 5 that a mobile station 3-30 includes a data link layer (MAC/RLC/PDCP entity 20_2) operating below an IP layer (24). The MAC layer is part of the data link layer and provides error handling, flow control and synchronization, which is utilized by the upper IP layer; the IP layer provides switching and routing technologies for transmitting data across a network. Furthermore, the PDCP entity 20_2 includes a compression/decompression entity system 29_2 for performing header compression and decompression on incoming and outgoing packets. Refer to Column 10, line 21 to Column 11, line 26. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a mobile station comprising a data link layer to perform the disclosed method. One would be motivated to do so since the data link layer is an integral part of the network architecture and provides services to the upper IP layer so that the IP layer can perform switching and routing of data across the network.

Referring to claim 11, Le et al disclose in Figure 3 that logical connections (313,315) are assigned for payload and for at least two different compression states (context 1, context 2); that the compressor 314 is configured to separate the payload

and header fields of an IP packet to be transferred; that the compressor 314 is arranged to compress the header fields using the selected compression algorithm and compression context (context 1, context 2); and that the compressor 314 is configured to transfer the payload and the header fields compressed on the basis of different states on the logical connections (context 1 on connection 313, context 2 on connection 315) allocated to them. Refer to Column 4, lines 41-56.

Le et al do not disclose a mobile station comprising a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the radio resources control protocol layer is configured, in response to an instruction transferred by the radio resources control protocol layer of the packet radio network, to map an entity of the packet data convergence protocol layer to logical connections; and that the packet data convergence protocol entity is configured to perform the disclosed method.

Svanbro et al disclose in Figure 3 that a mobile station 3-30 includes packet data convergence protocol layer entity (PDCP entity 20_2) with a compression/decompression entity system 29_2 for performing header compression and decompression on incoming and outgoing packets. When the mobile station 3-30 sends packets to radio network controller 3-26, mobile station 3-30 performs compression using PDCP entity 20_2. Refer to Column 7, lines 56-63 and Column 10, lines 36-51. Furthermore, the header compression algorithms and their parameters are negotiated by a Radio Resource Control (RRC) for each PDCP entity and indicated to the PCDP through a PCDP Control Service Access Point. Refer to Column 4, lines 8-16. Therefore, it would have

been obvious to one of ordinary skill in the art at the time the invention was made to include a mobile station comprising a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the radio resources control protocol layer is configured, in response to an instruction transferred by the radio resources control protocol layer of the packet radio network, to map an entity of the packet data convergence protocol layer to logical connections; and that the packet data convergence protocol entity is configured to perform the disclosed method. One would be motivated to do so in order to compress packets at the data link layer before transmission to the upper IP layer for routing and switching across the network, and to decompress packets at the data link layer before physical transmission to the destination, according to instruction from a higher layer protocol.

Referring to claim 12, Le et al disclose in Figure 3 that a decompressor 316 is configured to decompress the header fields received on the logical connections (313,315) according to the negotiated compression algorithm and compression context (context 1, context 2) and combine the header fields and payload. Refer to Column 4, line 56 to Column 5, line 7.

Le et al do not disclose that the mobile station comprises a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the packet data convergence protocol layer entity performs the decompressing of the header fields and the combining of the header fields and the payload.

Svanbro et al disclose in Figure 3 that a mobile station 3-30 includes packet data

convergence protocol layer entity (PDCP entity 20_2) with a compression/decompression entity system 29_2 for performing header compression and decompression on incoming and outgoing packets. When the mobile station 3-30 receives packets from radio network controller 3-26, radio network controller 3-26 performs compression using PDCP entity 20_2 and mobile station 3-30 performs decompression using PDCP entity 20_2. Refer to Column 7, lines 56-63 and Column 10, lines 36-51. Furthermore, the header compression algorithms and their parameters are negotiated by a Radio Resource Control (RRC) for each PDCP entity and indicated to the PCDP through a PCDP Control Service Access Point. Refer to Column 4, lines 8-16. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the mobile station comprises a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the packet data convergence protocol layer entity performs the decompressing of the header fields and the combining of the header fields and the payload. One would be motivated to do so in order to compress packets at the data link layer before transmission to the upper IP layer for routing and switching across a network, and to decompress packets at the data link layer before physical transmission to the destination, according to instruction from a higher layer protocol.

Referring to claim 13, refer to the rejection of claims 1 and 7. Le et al also disclose that the method can be used in cellular systems over wireless interfaces, in order to utilize header compression to conserve radio resources. Refer to Column 1,

lines 38-44. The invention disclosed in Figure 3 "may form part of apparatus such as host, terminal, router, etc.". Refer to Column 3, lines 54-60.

However, Le et al disclose in Figure 3 an IP layer performing the disclosed method but do not disclose a radio network controller of a mobile communications system comprising a data link layer to perform the disclosed method.

Svanbro et al disclose in Figure 5 that a radio network controller 3-36 includes a data link layer (MAC/RLC/PDCP entity 20_1) operating below an IP layer (24). The MAC layer is part of the data link layer and provides error handling, flow control and synchronization, which is utilized by the upper IP layer; the IP layer provides switching and routing technologies for transmitting data across a network. Furthermore, the PDCP entity 20_1 includes a compression/decompression entity system 29_1 for performing header compression and decompression on incoming and outgoing packets. Refer to Column 10, line 21 to Column 11, line 26. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a radio network controller of a mobile communications system comprising a data link layer to perform the disclosed method. One would be motivated to do so since the data link layer is an integral part of the network architecture and provides services to the upper IP layer so that the IP layer can perform switching and routing of data across the network.

Referring to claim 14, Le et al disclose in Figure 3 that logical connections (313,315) are assigned for payload and for at least two different compression states (context 1, context 2); that the compressor 314 is configured to separate the payload and header fields of an IP packet to be transferred; that the compressor 314 is arranged

to compress the header fields using the selected compression algorithm and compression context (context 1, context 2); and that the compressor 314 is configured to transfer the payload and the header fields compressed on the basis of different states on the logical connections (context 1 on connection 313, context 2 on connection 315) allocated to them. Refer to Column 4, lines 41-56.

Le et al do not disclose a radio network controller comprising a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the radio resources control protocol layer is configured to transfer to the radio resources control protocol layer of the mobile station an instruction to map an entity of the packet data convergence protocol layer to logical connections; and that the packet data convergence protocol entity is configured to perform the disclosed method.

Svanbro et al disclose in Figure 3 that a radio network controller 3-26 includes packet data convergence protocol layer entity (PDCP entity 20_1) with a compression/decompression entity system 29_1 for performing header compression and decompression on incoming and outgoing packets. When the radio network controller 3-26 sends packets to a mobile station 3-30, radio network controller 3-26 performs compression using PDCP entity 20_1. Refer to Column 7, lines 56-63 and Column 10, lines 36-51. Furthermore, the header compression algorithms and their parameters are negotiated by a Radio Resource Control (RRC) for each PDCP entity and indicated to the PCDP through a PCDP Control Service Access Point. Refer to Column 4, lines 8-16. Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to include a radio network controller comprising a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the radio resources control protocol layer is configured to transfer to the radio resources control protocol layer of the mobile station an instruction to map an entity of the packet data convergence protocol layer to logical connections; and that the packet data convergence protocol entity is configured to perform the disclosed method. One would be motivated to do so in order to compress packets at the data link layer before transmission to the upper IP layer for routing and switching across the network, and to decompress packets at the data link layer before physical transmission to the destination, according to instruction from a higher layer protocol.

Referring to claim 15, Le et al disclose in Figure 3 that a decompressor 316 is configured to decompress the header fields received on the logical connections (313,315) according to the negotiated compression algorithm and compression context (context 1, context 2) and combine the header fields and payload. Refer to Column 4, line 56 to Column 5, line 7.

Le et al do not disclose that the radio network controller comprises a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the packet data convergence protocol layer entity performs the decompressing of the header fields and the combining of the header fields and the payload.

Svanbro et al disclose in Figure 3 that a radio network controller 3-26 includes

packet data convergence protocol layer entity (PDCP entity 20_1) with a compression/decompression entity system 29_1 for performing header compression and decompression on incoming and outgoing packets. When the radio network controller 3-26 receives packets from the mobile station 3-30, mobile station 3-30 performs compression using PDCP entity 20_1 and radio network controller 3-26 performs decompression using PDCP entity 20_2. Refer to Column 7, lines 56-63 and Column 10, lines 36-51. Furthermore, the header compression algorithms and their parameters are negotiated by a Radio Resource Control (RRC) for each PDCP entity and indicated to the PCDP through a PCDP Control Service Access Point. Refer to Column 4, lines 8-16. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the radio network controller comprises a radio resources control protocol layer which controls a packet data convergence protocol layer of the data link layer, wherein the packet data convergence protocol layer entity performs the decompressing of the header fields and the combining of the header fields and the payload. One would be motivated to do so in order to compress packets at the data link layer before transmission to the upper IP layer for routing and switching across the network, and to decompress packets at the data link layer before physical transmission to the destination, according to instruction from a higher layer protocol.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng
March 17, 2006

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600